Understanding the Communicative Context Created Through Telemedicine Interactions

Jeanine W. Turner[1], Adil Alaoui[2], James Winchester[3], Alan Neustadtl[4], Betty A. Levine[2], Jeff Collmann[2], Seong K. Mun[2]
[1]McDonough School of Business, Georgetown University, [2]Department of Radiology, Imaging Science and Information Systems Research Center, Georgetown University Medical Center, [3]Department of Medicine, Nephrology, Georgetown University Medical Center, [4]Department of Sociology, University of Maryland, College Park
turnerjw@georgetown.edu

A telemedicine clinical consultation constitutes a dramatic change in the communicative context for doctor-patient information exchange. Project Phoenix was designed to compare telemedicine and nontelemedicine interactions for two populations of hemodialysis patients. Within the context of this research, we were interested in studying differences in communication when comparing a face-to-face traditional doctor and patient encounter with a telemedicine encounter. To study these two communicative settings, we used a qualitative and quantitative design.

First we engaged in participant observation for 6 months to study the communicative interactions that take place between doctor and patient. On the basis of these observations, we developed a coding scheme for analyzing the telemedicine sessions. In addition, the observations served as a foundation for an interview guide for exploring patient perceptions of telemedicine interactions.

ANALYSIS OF THE INTERVIEWS

We conducted interviews with 12 patients and 2 nurses at the telemedicine site. The patient interviews took place at the end of their dialysis sessions and averaged 45 minutes to 1 hour in length. The data suggest that patients make clear distinctions regarding their expectations of telemedicine care. Patients described various situations under which telemedicine care is and is not appropriate. We coded these situations according to themes and categorized them into patient perceptions of telemedicine conditions. Patients suggested that telemedicine was helpful in providing additional availability for them, greater efficiencies for the physician, and visual contact.

These three themes (availability, efficiency, and visual contact) mirror the perceptions found in other telemedicine studies, which suggest that these patients perceive telemedicine as providing an almost equivalent alternative to a face-to-face visit. However, when patients were asked to discuss situations where telemedicine might not be effective, patients were able to highlight specific contexts as inappropriate for telemedicine use.

Patient Perception of Conditions for Telemedicine

As patients described their telemedicine visits, it became clear that certain situations were more appropriate for telemedicine than others. These situations related to the degree of uncertainty present.

- *Routine/Certainty.* Patients suggested that telemedicine worked well when the physician's task involved a routine check. Specifically, increased access to a physician through telemedicine was satisfactory when the patients were doing well (i.e., stable blood pressure, fluid level, and access site).
- *Emergency/Crisis.* Patients also felt that telemedicine would be helpful during unexpected emergencies. In this way, telemedicine provides additional

availability through visual contact that a phone would not.

- *Moderate Uncertainty/Redirections in Care.* When patients were asked to describe times when they preferred an in-person visit to a telemedicine visit, each patient noted a circumstance involving moderate uncertainty. These might refer to medication changes, problems with a graft or access site, or a major redirection in care. Patients noted the need for direct intervention from the doctor to remove ambiguity from the situation.

Presence Offered by Telemedicine

Interviews with patients, nurses, and physicians also revealed that the telemedicine environment was different from the in-person visit.

- *Patient Perceptions.* Patient descriptions suggested that they perceived the telemedicine conditions to be very different. Privacy, telepresence, and communicative ability of the context were some of the issues discussed.
- *Physician Perceptions.* The physician's responses suggested that he perceived the conditions as very similar, except that he felt telemedicine rounds took longer and could get boring. He reported no difference in the interactions in general and could not describe a single instance where he needed to be in person to perform a necessary procedure while using telemedicine.
- *Nurse Perceptions.* The nurse who worked with the telemedicine system and wheeled the system from bed to bed commented that she enjoyed the control that she had over the sessions. She was able to decide when the session between the physician and patient was officially over, since she manually pushed the system to the next patient bed. She did not perceive a difference between the telemedicine and in-person consultations.

ANALYSIS OF CODING SESSIONS

In response to findings from the interviews, we coded conversations between the doctor and patient by indicating on a coding sheet each time the following topics were introduced into the conversation: social/nonclinical topics, routine checks, medication refills, access problems, changes in dialysis, referrals to other specialists, medication changes, medication orders, travel-related concerns, lab results and other reports, patient complaints, family discussions, confidential discussions, and patient education. We also coded special situations that might occur, such as the need for physical checks (by the nurse or the physician), physician interruptions, times when the patient refused to interact, and technical problems. Consultation time was also tracked. Between May 1998 and March 1999, 147 patient encounters were coded across telemedicine and in-person conditions.

FINDINGS

We found no significant difference between the telemedicine and in-person conditions. Therefore, although the interviews with patients suggested that they might introduce more topics during in-person sessions than during telemedicine, the coded sessions did not reflect that finding.

Comparisons of the time required for face-to-face versus telemedicine consultations at the two telemedicine sites revealed that the in-person visits at the telemedicine site took longer than the telemedicine sessions. However, both conditions took longer than the control site. These findings suggest that, in general, consultations at the experimental site took longer than the control site regardless of the technology. The fact that physical rounds took longer suggests that patients may have talked longer about specific topics in person than they did via telemedicine, even if there was no difference in the number of topics that they introduced.

Interruptions/Technical

Coders reported no interruptions during the telemedicine consultations. However, during the in-person consultations at Union Plaza, 11 of the 51 sessions experienced some type of interruption, with 6 sessions having 4 interruptions during a single session. Only 2 of the 47 telemedicine sessions reported technical problems.

SUMMARY

The results of the study of the communications taking place within the three conditions suggest that although patients perceive a telemedicine interaction as different from an in-person interaction, this perception does not seem to influence the topics that they discuss. The differences in consultation time suggest that doctor-patient interactions take longer during in-person rounds than during telemedicine rounds. This finding is particularly interesting since the physician perceived that telemedicine rounds took longer. These results support telemedicine as an effective alternative for end-stage renal disease patients. However, the qualitative results suggest that implementers of telemedicine should be aware of the patients' need for in-person interactions with the physician. Although the results suggest that there was generally no difference between telemedicine and in-person visits in terms of the interactions that took place, it is important to remember that these patients knew that they would be able to see the physician both ways. If the patient had been allowed only a telemedicine visit, the results might have been different.